

NETWORK SECURITY AND INFORMATION ASSURANCE AT JACKSON STATE UNIVERSITY

A Successful Story

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Abstract: In this paper we share the story of Network Security and Information Assurance education at Jackson State University. We narrate its start, collaboration with another university, and our steps towards establishing a Center of Academic Excellence in this domain.

Key words: Network Security, Information Assurance, Education, Jackson State University

1. INTRODUCTION

The example of the Internet and communication networks in the progress of our lives nowadays is water. We cannot imagine our economy, education, communication with others, defense, pleasure, etc, without the Internet. E-mail, HTTP, WWW, all are thought nowadays to be necessities, although we know for sure that Adam and Eve did not have them! Consequently, the protection of information becomes more and more challenging. Accordingly, the interest in Network Security and Information Assurance (NSIA) is growing day by day and the latter is posed to be in the heart of Computer Science education.

Acknowledging this fact, the Department of Computer Science at Jackson State University (JSU) moved into providing NSIA as part of its curriculum. Initially, a network security course for undergraduates and graduate students was offered once a year in collaboration with Mississippi State University (MSU), Mississippi State, Mississippi. Thus, in spring 2002, this course was offered as a distance learning class. Eventually, the course was offered in spring 2004 by Dr. H. Kettani, a faculty member of the Department of Computer Science at JSU and is being offered in every spring semester

Meanwhile, the department has received two generous grants from the National Science Foundation to enhance the department's NSIA program and establish a Center of Academic Excellence in NSIA. As a result, two undergraduate and two graduate students have been supported and are performing very well in their NSIA career.

In this paper, we elaborate on the journey of the Department of Computer Science at JSU to establish NSIA awareness in its program, our success, and future plans.

2. ABOUT JACKSON STATE UNIVERSITY

Jackson State University (JSU) is one of the nation's largest and prominent Historically Black College/University (HBCU) located at Jackson, the capital of the state of Mississippi. As of fall 2003, Jackson State University, enrolled 7,815 students. Of this total enrollment, 63% are female, 81% are undergraduates, and 94% are African Americans [1].

The College of Science, Engineering, and Technology at Jackson State University provides an excellent opportunity for large numbers of the African Americans, both men and women, to obtain engineering education. As of fall 2003, this college enrolled 1,655 students, which is 23% of the total enrollment of the university. Of this college's total enrollment, 52% are female, 87% are undergraduates, and 94% are African Americans [1].

The Department of Computer Science offers both Bachelor of Science and Master of Science degrees. The Bachelor of Science degree program is accredited by the Accreditation Board for Engineering and Technology (ABET). The Department of Computer Science is also a leading producer of African Americans with the Bachelor of Science degree in Computer Science. As of fall 2003, this department enrolled 330 students, which is 20% of the total enrollment of the College of Science, Engineering, and Technology. Of this department's total enrollment, 38% are female, 76% are undergraduates, and 84% are African Americans [1].

3. COLLABORATION WITH MISSISSIPPI STATE UNIVERSITY

Mississippi State University (MSU) has developed a strong NSIA program and is two hours drive north east of JSU. Thus, when we were thinking of developing our NSIA program, we decided that it would be a good idea to learn from MSU's experience and collaborate with its Computer Science Department. Accordingly, a network security course for undergraduates and graduate students was offered once a year in collaboration with MSU as distance learning class. Thus, in spring 2002, the course was offered at MSU by Dr. R. Vaughn, a faculty member of the Department of Computer Science at MSU and was broadcast to JSU. In spring 2004, the course was offered as semi distance learning class, where Dr. Vaughn alternated between MSU and JSU. In addition, this course had a laboratory that was offered at JSU and supervised by two JSU graduate students as teaching assistants. The adopted lab experiments followed the lab manual that was developed at MSU.

4. NATIONAL SCIENCE FOUNDATION'S SUPPORT

In response to a National Science Foundation (NSF) request for proposals for a Scholarship for Service (SFS) grant, and in collaboration with MSU, JSU was awarded in August 2002 two SFS grants of \$350,000 for a period of 4 years. The purpose of these grants is to increase NSIA awareness on campus. With these grants we were able to support two undergraduate students and two graduate students for duration of two years. These students were required to have an internship in NSIA domain at a government institution of their choice, and work for two consecutive years at such institution after the completion of their degree. We note that the students that we supported did not have trouble in finding such internships. In the past two summers, we had one graduate and one undergraduate student who worked at the Federal Bureau

of Investigation (FBI) at Washington, DC, a graduate student who worked at the Federal Administration Agency (FAA) at Washington, DC, and an undergraduate student NASA Stennis Space Center, Mississippi. In May 2005, our first supported student has earned her Masters of Science and started working at another Government agency.

The grant also helped in sending students and faculty members to attend educational and training conferences and workshops in NSIA domain. For example, in 2004, Dr. Kettani was sent to two conferences organized by SysAdmin, Audit, Network, and Security (SANS) Institute. Dr. Kettani also attended the Sixth Workshop on Education in Computer Security (WECS6). Thus, in spring 2005, he instructed the course independently from MSU. The course still has a lab, and the enrollment is a dozen to a score of students.

5. TOWARDS A CENTER OF ACADEMIC EXCELLENCE

The first step in establishing a Center of Academic Excellence in NSAI is to map the courses that we offer in NSIA domain to two standards of the Information Assurance Courseware Evaluation (IACE). Accordingly, in February 2004, the Review Committee of IACE has validated the mapping at 100% for the Committee on National Security Systems (CNSS) National Standards 4011 and 4014 Entry Level. Consequently, JSU has received recognition and a certificate during the CNSS Annual Conference, Norfolk, Virginia, April, 2004. Consequently, we have applied to the 8th annual NSA and DHS for the Centers of Academic Excellence in Information Assurance Education Program Offering in December 2005.

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